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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/707,033	11/17/2003	Akio Ikeda	137522-1	1032

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CANTOR COLBURN LLP
55 GRIFFIN RD SOUTH
BLOOMFIELD, CT 06002

EXAMINER	
BOYKIN, TERRESSA M	

ART UNIT	PAPER NUMBER
1711	

DATE MAILED: 02/15/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Supplemental Office Action Summary	Application No. 10/707,033	Applicant(s) IKEDA ET AL.	
	Examiner Terressa M. Boykin	Art Unit 1711	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *Telephone Interview 2-3-05*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3,4, 6 - 27* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3,4, 6 - 27* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *01 December 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☒ Interview Summary (PTO-413) Paper No(s)/Mail Date. 2/10/05
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Priority

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Supplemental Final Action

This supplemental action is made in response to a telephone interview with Joel T. Charlton on 2-3-05 with regard to the cancelled claims 2 and 5, to some typographical errors as well as to the response to Amendment as discussed below. The disposition of claims, typographical errors have now been corrected as well as Examiners response are more clearly set forth.

Response to Amendment: Applicant's arguments filed 10-1-04 have been fully considered but they are not deemed to be persuasive. Applicants' arguments were considered, however, were deemed mute in view of the following. With regard to applicant's amendment to claim 1 regarding the inclusion of the limitations as set forth in original claim 2 (now cancelled), the limitations of "adjusting" the OH concentration have not been adequately set forth to support applicant's explanation of how such process step overcomes the previous 102 anticipatory rejection. The word "adjusting", as well as subsequent explanation regarding such, is lacking with regard to any explanatory process step that would direct one of ordinary skill in the art to accomplish that function. The "adjustment" of the concentration of the OH, whether before, during, or after is unclear in both applicants' claims and applicants' specification and does not clearly defined any differences with regard to applicants adjustment of the prepolymer with that of the prior art. Applicants have neither stated what the specific "adjustment" is or how the particular "adjustment" is accomplished. Further, the specific resulting "adjustment" is not made clear as to its specific affect on the OH concentration, i.e. higher or lower concentration of OH etc. On the other hand, as interpreted by the Examiner, the reference *does teach* that an "adjustment" of the OH concentration may be made via the addition of various additives or agents. For example, note that paragraph 43 on page 3 states that auxiliaries and reinforcing agents may be mixed in the polycarbonate...to change or improve certain properties, i.e. adjust certain properties. Note also in paragraph 30 on page 2 and in paragraph 31 on page 3, wherein it is noted that the "adjustment" may be made "before" being fed on for granulation. Further, paragraph 31 states that additives (which may "adjust" the concentration of OH) may be added at any point in the reaction. Consequently, since the recited "adjustment" lacks specific

process steps or descriptions thereof that would make clear and teach one of ordinary skill in the art how to effect such an "adjustment", the 102 rejection is maintained.

Consequently, the claimed invention continues to not be deemed as novel and accordingly is unpatentable.

35 U.S.C. 112

Claims 1, 3 – 4, 6 - 15, are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

With regard to the issue of new matter, applicants' explanation of what constitutes an "adjustment" has not been adequately disclosed in the specification. Applicants have merely stated in the specification that an "adjustment" is made without designating what constitutes that specific "adjustment". The explanation given in applicant's response implies or ascribes certain definitions and processes not in the original disclosure.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 3-4, 6-27 are rejected under 35 U.S.C. 102(e) as being anticipated by US 2003/0065130 see pages 1- 5, tables 1-3 and claims 1- 13.

As stated previously, applicants' claim 1 is directed to a method of recycling polycarbonate resin waste, comprising subjecting a polycarbonate waste component to one or both of a transesterification reaction and a polycondensation reaction, wherein the polycarbonate waste component has an OH group concentration and comprises

polycarbonate resin waste; and adjusting the OH group concentration of the polycarbonate waste component.

Note, however, that **US 2003/0065130** discloses a process for making a high molecular weight (co)polycarbonate resin. The process entails (i) obtaining at least one member selected from the group low molecular weight residue (weight average molecular weight 15,000 to 30,000) of aromatic (co)polycarbonate production, waste of (co)polycarbonate production, remainders of (co)polycarbonate production and (co)polycarbonate recyclate (ii) melting the said member in a suitable vessel to obtain a melt and (iii) feeding the melt into a reactor optionally along with at least one bisphenol or oligocarbonate having terminal OH groups and further optionally with a transesterification catalyst, and (iv) subjecting the melt to transesterification reaction at a temperature of 250 to 350 C., at a pressure below 5 mbar and residence time of 0.02-4 hours.

With regard to applicants' claims 3, 4, and 6, wherein the OH group concentration is adjusted before being subjected to either of the transesterification reaction or the polycondensation reaction; wherein the polycarbonate waste component further comprises polycarbonate oligomer; wherein the OH group concentration is adjusted during the transesterification reaction; wherein the OH group concentration is adjusted during the polycondensation reaction, or lastly, wherein the OH group concentration is a terminal OH group concentration, note that on page 2 paragraph 12 the reference discloses a process for the condensation of polycarbonate, characterized in that polycarbonates may be condensed in the melt, usefully with the addition of

bisphenols or oligocarbonates *with OH terminal groups to accelerate the reaction, optionally* using catalysts to obtain polycarbonates, which have a higher molecular weight than the starting polycarbonate. Note further that in paragraph 18 of page 2 the reference states that the OH concentration may be adjusted in the melt by adding a bisphenol, preferably bisphenol A, or oligocarbonates having terminal OH groups. Note also applicants' claims 17, 18, 19, 20, 21, 22 and 23.

With regard to applicants' claims 7, 8, 9, 10, and 11 further comprising introducing the polycarbonate waste component and a material to a prepolymerization tank, wherein the material is selected from the group consisting of a dihydroxy compound, a carbonate diester, reaction products of a dihydroxy compound and a carbonate diester, and combinations comprising at least one of the foregoing materials, wherein the polycarbonate waste component comprises an aromatic polycarbonate comprising bisphenol-A; wherein adjusting the OH group concentration comprises adding a terminal regulator during one or both of the transesterification and polycondensation reactions; wherein the terminal regulator comprises an aromatic dihydroxy compound, or lastly; wherein the aromatic dihydroxy compound comprises bisphenol-A, note that the reference states on page 3 paragraph 38 that single polycarbonate or a mixture of various polycarbonates may be condensed. The polycarbonates may differ with regard to their average molecular weight, the bisphenol used and/or *the chain stopper*, branching agent etc., used. Mixtures of polycarbonates, which are built up of the same bisphenol, in particular bisphenol A, are preferred. See also applicants' claim 27.

With regard to applicants' claims 12, 13, and 14 wherein the OH concentration is about 200 to about 25,000 ppm or 500 to about 20,000 ppm or 500 to about 10,000 ppm per unit weight of the polycarbonate waste component, note that the reference states on 2 paragraph 18 that the polycarbonate used either already has an average concentration of phenolic terminal groups of over 100 ppm OH, preferably 100-1500 ppm, in particular 400-1000 ppm, or this is adjusted in the melt by adding a bisphenol, preferably bisphenol A, or oligocarbonates having terminal OH groups which overlap applicants' claimed ranges. Note also applicant's claims 24, 25 and 26.

With regard to applicants' claim 15 regard a recycling method which results in a polycarbonate product having an intrinsic viscosity of 0.1 to 1.0 dl/g, note that the reference discloses tables 1-3 the relative solution viscosity which appears to anticipate applicants claimed invention. Since the disclosed viscosity are expressed differently but appear to be the same based on the methods employed and thus may be distinct from those claimed, it is incumbent upon applicant(s) to establish that they are in fact different. Additionally, note that any properties or characteristics inherent in the prior art, e.g. intrinsic viscosity versus relative solution viscosity, although unobserved or detected by the reference, would still anticipate the claimed invention.

Applicants' claim 16 is directed to a method of recycling polycarbonate resin waste, comprising: introducing a dihydroxy compound and a carbonate diester to a mixing tank to form a mixing tank composition; directing the mixing tank composition to a prepolymerization tank to form a prepolymerization composition; melting a polycarbonate waste component, wherein the polycarbonate waste component has an

OH group concentration and comprises polycarbonate resin waste; combining the prepolymerization composition with the melted polycarbonate waste component to form a combination; adjusting the OH group concentration of the polycarbonate waste component; polymerizing the combination to form a polycarbonate product; and extruding the polycarbonate product. Note however, that the reference discloses a process for making a high molecular weight (co)polycarbonate resin comprising ***(i) obtaining at least one member selected from the group low molecular weight residue (weight average molecular weight 15,000 to 30,000) of aromatic (co)polycarbonate production,*** this would be inclusive of applicants prepolymerization composition. Further the mixing of the waste composition and the prepolymerization composition may be anticipated by the recyclate disclosed in the reference. Note that the reference states at least one member selected from...which would imply that two of the polycarbonates "type" moieties may be employed therein. Reading further note that step (ii) i.e. melting said at least one member in a suitable vessel to obtain a melt and (iii) feeding the melt into a suitable reactor operated batch-wise or continuously, optionally along with at least one bisphenol or oligocarbonate having terminal OH groups and further optionally with a transesterification catalyst, and (iv) subjecting the melt to transesterification reaction at a temperature of 250 to 350 C., at a pressure below 5 mbar and residence time of 0.02-4 hours, to obtain high molecular weight (co)polycarbonate resin anticipates the reaction conditions as set forth. Note that the steps of mixing, extruding etc. are noted in page 2 paragraphs 30, 40 45, 79 as well as paragraph 19 of the reference.

In view of the above, there appears to be no significant difference between the reference and that which is claimed by applicant(s). Any differences not specifically mentioned appear to be conventional. Consequently, the claimed invention cannot be deemed as novel and accordingly is unpatentable.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Correspondence

Please note that the cited U.S. patents and patent application publications are available for download via the Office's PAIR. As an alternate source, all U.S. patents and patent application publications are available on the USPTO web site (www.uspto.gov), from the Office of Public Records and from commercial sources. Applicants may be referred to the Electronic Business Center (EBC) at http://www.uspto.gov/ebc/index.html or 1-866-217-9197.

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Examiner Terressa Boykin, via the receptionist whose telephone number is (703) 308-2351. The examiner can normally be reached on Monday through Friday from 8:00a.m.-5:30 p.m.

tmb

Examiner Terressa Boykin
Primary Examiner
Art Unit 1711